

The Bee-Master  
of  
Warrilow.

TICKNER EDWARDES.

"PAUL MALL" PRESS.

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THE  
BEE-MASTER OF WARRILOW.







THE BEE-MASTER'S COTTAGE.



THE  
BEE-MASTER  
OF  
WARRILOW.



By TICKNER EDWARDES,

Author of "Bees as Rent Payers," "Sidelights of Nature,"  
"An Idler in the Wilds," &c.



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## INTRODUCTION.

Among the beautiful things of the countryside which are slowly but surely passing away must be reckoned the old Bee Gardens—fragrant, sunny nooks of blossom, where the bees are housed only in the ancient straw-skeps, and have their own way in everything, the work of the bee-keeper being little more than a placid looking-on at events of which it would have been heresy to doubt the finite perfection.

To say, however, that modern ideas of progress in bee-farming must inevitably rob the pursuit of all its old-world poetry and picturesqueness would be to represent the case in an unnecessarily bad light. The latter-day beehive, it is true, has little more æsthetic value than a Brighton bathing-machine; and the new class of bee-keepers, which is springing up all over the country, is composed mainly of people who have taken to the calling as they would to any other lucrative business, having, for the most part, nothing but a good-humoured contempt alike for the old-fashioned bee-keeper and the ancient traditions and superstitions of his craft.

Nor can the inveterate, old-time skeppist himself—the man who obstinately shuts his eyes to all that is good and true in modern bee-science—be counted on to help in the preservation of the beautiful old gardens, or in keeping alive customs which have been handed down from generation to generation, almost unaltered, for literally thousands of years. Here and there, in the remoter parts of the country, men can still be found who keep their bees much in the same way as bees were kept in the time of Columella or Virgil; and are content with as little profit. But these form a rapidly diminishing class. The advantages of modern methods are too overwhelmingly apparent. The old school must choose between the adoption of latter-

day systems, or suffer the only alternative—that of total extinction at no very distant date.

Luckily for English bee-keeping, there is a third class upon which the hopes of all who love the ancient ways and days, and yet recognise the absorbing interest and value of modern research in apiarian science, may legitimately rely. Born and bred amongst the hives, and steeped from their earliest years in the lore of their skeppist forefathers, these interesting folk seem, nevertheless, imbued to the core with the very spirit of progress. While retaining an unlimited affection for all the quaint old methods in bee-keeping, they maintain themselves, unostentatiously, but very thoroughly, abreast of the times. Nothing new is talked of in the world of bees that these people do not make trial of, and quietly adopt into their daily practice, if really serviceable ; or as quietly discard, if the contrivance prove to have little else than novelty to recommend it.

As a rule, they are reserved, silent men, difficult of approach ; and yet, when once on terms of familiarity, they make the most charming of companions. Then they are ever ready to talk about their bees, or discuss the latest improvements in apiculture ; to explain the intricacies of bee-life, as revealed by the foremost modern observers, or to dilate by the hour on the astounding delusions of mediæval times. But they all seem to possess one invariable characteristic—that of whole-hearted reverence for the customs of their immediate ancestors, their own fathers and grandfathers. In a long acquaintance with bee-men of this class, I have never yet met with one who could be trapped into any decided admission of defect in the old methods, which—to say truth—were often as senseless as they were futile, even when not directly contrary to the interest of the bee-owner, or the plain, obvious dictates of humanity. In this they form a refreshing contrast to the ultra-modern, pushing young apiculturist of to-day ; and it is as a type of this class that the Bee-Master of Warrilow is presented to the reader.

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# THE BEE-MASTER OF WARRILOW.

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## CHAPTER I.

Long, lithe, and sinewy, with three score of years of sunburn on his keen, gnarled face, and the sure stride of a mountain goat, the Bee-Master of Warrilow struck you at once as a notable figure in any company.

Warrilow is a little precipitous village tucked away under the green brink of the Sussex Downs ; and the bee-farm lay on the southern slope of the hill, with a sheltering barrier of pine above, in which, all day long, the winter wind kept up an impotent complaining. But below, among the hives, nothing stirred in the frosty, sun-riddled air. Now and again a solitary worker-bee darted up from a hive door, took a brisk turn or two in the dazzling light, then hurried home again to the warm cluster. But the flash and quiver of wings, and the drowsy song of summer days, were gone in the iron-bound January weather ; and the bee-master was lounging idly to and fro in the great main-way of the waxen city, shotgun under arm, and with apparently nothing more to do than to meditate over past achievements, or to plan out operations for the season to come.

As I approached, the sharp report of the gun rang out, and a little cloud of birds went chattering fearsomely away over the hedgerow. The old man watched them as they flew off dark against the snowy hillside. He threw out the cartridge-cases disgustedly.

"Blue-tits!" said he. "They are the great pest of the bee-keeper in winter time. When the snow covers the ground, and the frost has driven all insect-life deep into

the crevices of the trees, all the blue-caps for miles round trek to the bee-gardens. Of course, if the bees would only keep indoors they would be safe enough. But the same cause that drives the birds in lures the bees out. The snow reflects the sunlight up through the hive-entrances, and they think the bright days of spring have come, and out they flock to their death. And winter is just the time when every single bee is valuable. In summer a few hundreds more or less make little difference, when in every hive young bees are maturing at the rate of two or three thousand a day to take the place of those that perish. But now every bee captured by the tits is an appreciable loss to the colony. They are all nurse-bees in the winter-hives, and on them depends the safe hatching-out of the first broods in the spring season. So the bee-keeper would do well to include a shot-gun among his paraphernalia, unless he is willing to feed all the starving tits of the countryside at the risk of his year's harvest."

"But the blue-cap," he went on, "is not always content to wait for his breakfast until the bees voluntarily bring it to him. He has a trick of enticing them out of the hive which is often successful even in the coldest weather. Come into the extracting-house yonder, and I may be able to show you what I mean."

He led the way to a row of outbuildings which flanked the northern boundary of the garden and formed additional shelter from the blustering gale. A window of the extracting-house overlooked the whole extent of hives. Opening this from within with as little noise as possible, the bee-master put a strong field-glass into my hand.

"Now that we are out of sight," he said, "the tits will soon be back again. There they come—whole families of them together! Now watch that green hive over there under the apple-tree."

Looking through the glass, I saw that about a dozen tits had settled in the tree. Their bright plumage contrasted vividly with the sober green and grey of the lichened boughs, as they swung themselves to and fro in the sunshine. But presently the boldest of them gave up this pretence of searching for food among the branches, and hopped down upon the alighting-board of the hive. At once two or three others followed him; and

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then began an ingenious piece of business. The little company fell to pecking at the hard wood with their bills, striking out a sharp ringing tattoo plainly audible even where we lay hidden. The old bee-man snorted contemptuously, and the cartridges slid home into the breech of his gun with a vicious snap.

"Now keep an eye on the hive-entrance," he said grimly.

The glass was a good one. Now I could plainly make out a movement in this direction. The noise and vibration made by the birds outside had roused the slumbering colony to a sense of danger. About a dozen bees ran out to see what it all meant, and were immediately pounced upon. And then the gun spoke over my head. It was a shot into the air, but it served its harmless purpose. From every bush and tree there came over to us a dull whirr of wings like far-off thunder, as the blue marauders sped away for the open country, filling the air with their frightened jingling note.

Perhaps of all cosy retreats from the winter blast it has ever been my good fortune to discover, the extracting-room on Warrilow bee-farm was the brightest and most comfortable. In summer-time the whole life of the apiary centred here; and the stress and bustle, inevitable during the season of the great honey-flow, obscured its manifold possibilities. But in winter the extracting-machines were, for the most part, silent; and the natural serenity and cosiness of the place reasserted themselves triumphantly. From the open furnace-door a ruddy warmth and glow enriched every nook and corner of the long building. The walls were lined with shelves where the polished tin vessels, in which the surplus honey was stored, gave back the fire-shine in a hundred flickering points of amber light. The work of hive-making in the neighbouring sheds was going briskly forward; but the noise of hammering, the shrill hum of sawing and planing machinery, and the intermittent cough of the oil-engine reached us only as a subdued, tranquil murmur—the very voice of rest.

The bee-master closed the window behind its thick bee-proof curtains, and, putting his gun away in a corner, drew a comfortable high-backed settle near to the cheery

blaze. Then he disappeared for a moment, and returned with a dusty cobweb-shrouded bottle, which he carried in a wicker cradle as a butler would bear priceless old wine. The cork came out with a ringing jubilant report, and the pale, straw-coloured liquid foamed into the glasses like champagne. It stilled at once, leaving the whole inner surface of the glass veneered with golden bells. The old beeman held it up critically against the light.

"The last of 19—," he said, regretfully. "The finest mead year in this part of the country for many a decade back. Most people have never tasted the old Anglo-Saxon drink that King Alfred loved, and probably Harold's men made merry with on the eve of Hastings. So they can't be expected to know that metheglin varies with each season as much as wine from the grape."

Of the goodness of the liquor there admitted no question. It had the bouquet of a ripe Ribston pippin, and the potency of East Indian sherry thrice round the Horn. But its flavour entirely eluded all attempt at comparison. There was a suggestive note of fine old perry about it, and a dim reminder of certain almost colourless Rhenish wines, never imported, and only to be encountered in moments of rare and happy chance. Yet neither of these parallels came within a sunbeam's length of the truth about this immaculate honey-vintage of Warrilow. Pondering over the liquor thus, the thought came to me that nothing less than a supreme occasion could have warranted its production to-day. And this conjecture was immediately verified. The bee-master raised his glass above his head.

"To the Bees of Warrilow!" he said, lapsing into the broad Sussex dialect, as he always did when much moved by his theme. "Forty-one years ago to-day the first stock I ever owned was fixed up out there under the old codlin-tree; and now there are two hundred and twenty of them. 'Twas before you were born, likely as not; and bee science has seen many changes since then. In those days there were nothing but the old straw skeps, and most bee-keepers knew as little about the inner life of their bees as we do of the bottom of the South Pacific. Now things are very different; but the improvement is mostly in the bee-keepers themselves. The bees are exactly as they

## The Bee-Master of Warrilow.

always have been, and work on the same principles as they did in the time of Solomon. They go their appointed way inexorably, and all the bee-master can do is to run on ahead and smooth the path a little for them. Indeed, after forty odd years of bee-keeping, I doubt if the bees even realise that they are. 'kept' at all. The bee-master's work has little more to do with their progress than the organ-blower's with the tune."

"Can you," I asked him, as we parted, "after all these years of experience, lay down for beginners in bee-manship one royal maxim of success above any other?"

He thought it over a little, the gun on his shoulder again.

"Well, they might take warning from this same King Solomon," he said, "and beware the foreign feminine element. Let British bee-keepers cease to import queen bees from Italy and elsewhere, and stick to the good old English Black. All my bees are of this strain, and mostly from one pure original Sussex stock. The English black bee is a more generous honey-maker in indifferent seasons; she does not swarm so determinedly, under proper treatment, as the Ligurians or Carniolans; and, above all, though she is not so handsome as some of her Continental rivals, she comes of a hardy northern race, and stands the ups and downs of the British winter better than any of the fantastic yellow-girdled crew from overseas."

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## CHAPTER II.

### FEBRUARY AMONGST THE HIVES.

The midday sun shone warm from a cloudless sky. Up in the highest elm-tops the south-west wind kept the chattering starlings gently swinging, but below in the bee-garden scarce a breath moved under the rich soft light.

As I lifted the latch of the garden-gate, the sharp click brought a stooping figure erect in the midst of the hives; and the bee-master came down the red-tiled winding path to meet me. He carried a box full of some yellowish powdery substance in one hand, and a big pitcher of water in the other; and, as usual, his shirt-sleeves were tucked up to the shoulder, baring his weather-browned arms to the morning sun.

"When do we begin the year's bee-work?" he said, repeating my question amusedly. "Why, we began on New Year's morning. And last year's work was finished on Old Year's night. If you go with the times, every day in the year has its work on a modern bee-farm, either indoors or out."

"But it is on these first warm days of spring," he continued, as I followed him into the thick of the hives, "that outdoor work for the bee-man starts in earnest. The bees began long ago. January was not out before the first few eggs were laid right in the centre of the brood-combs. And from now on, if only we manage properly, each bee-colony will go on increasing until, in the height of the season, every queen will be laying from two thousand to three thousand eggs a day."

He stopped and set down his box and his pitcher.

"If we manage properly. But there's the rub. Success in bee-keeping is all a question of numbers. The more worker-bees there are when the honey-flow begins, the greater will be the honey-harvest. The whole art of the bee-keeper consists in maintaining a steady increase in



### THE WAX MAKERS.

Bees' wax, supposed by the ancients to be a form of pollen collected from certain pouches on the under side of the abdomen of the worker-bee. The bees fill themselves with honey, and then hang in clusters while the wax is generated, perfect rest and a high temperature being necessary for its production.

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population from the first moment the queens begin to lay in January, until the end of May brings on the rush of the white clover, and every bee goes mad with work from morning to night. Of course, in countries where the climate is reasonable, and the year may be counted on to warm up steadily month by month, all this is fairly easy; but with topsy-turvy weather, such as we get in England, it is a vastly different matter. Just listen to the bees now! And this is only February!"

A deep vibrating murmur was upon the air. It came from all sides of us; it rose from under foot, where the crocuses were blooming; it seemed to fill the blue sky above with an ocean of sweet sound. The sunlight was alive with scintillating points of light, like cast handfuls of diamonds, as the bees darted hither and thither, or hovered in little joyous companies round every hive. They swept to and fro between us; gambolled about our heads; came with a sudden shrill menacing note and scrutinised our mouths, our ears, our eyes; or settled on our hands and faces, comfortably, and with no apparent haste to be gone. The bee-master noted my growing uneasiness, not to say trepidation.

"Don't be afraid," he said. "It is only their companionableness. They won't sting—at least, not if you give them their way. But now come and see what we are doing to help on the queens in their work."

At different stations in the garden I had noticed some shallow wooden trays standing among the hives. The old beeman led the way to one of these. Here the humming was louder and busier than ever. The tray was full of fine wood-shavings, dusted over with the yellow powder from the bee-master's box; and scores of bees were at work in it, smothering themselves from head to foot, and flying off like golden millers to the hives.

"This is pea-flour," explained the master, "and it takes the place of pollen as food for the young bees, until the spring flowers open and the natural supply is available. This forms the first step in the bee-keeper's work of patching up the defective English climate. From the beginning our policy is to deceive the queens into the belief that all is prosperity and progress outside. We keep all the hives well covered up, and contract the

entrances, so that a high temperature is maintained within, and the queens imagine summer is already advancing. Then they see the pea-flour coming in plentifully, and conclude that the fields and hillsides are covered with flowers; for they never come out of the hives except at swarming-time, and must judge of the year by what they see around them. Then in a week or two we shall put the spring-feeders on, and give each hive as much syrup as the bees can take down; and this, again, leads the queens into the belief that the year's food-supply has begun in earnest. The result is that the winter lethargy in the hive is soon completely overthrown, the queens begin to lay unrestrictedly, and the whole colony is forging on towards summer strength long before there is any natural reason for it."

We were stooping down, watching the bees at the nearest hive. A little cloud of them was hovering in the sunshine, heads towards the entrance, keeping up a shrill jovial contented note as they flew. Others were roving round with a vagrant, workless air, singing a low desultory song as they trifled about among the crocuses, passing from gleaming white to rich purple, then to gold, and back again to white, just as the mood took them. In the hive itself there was evidently a kind of spring-cleaning well in progress. Hundreds of the bees were bringing out minute sand-coloured particles, which accumulated on the alighting-board visibly as we watched. Now and again a worker came backing out, dragging a dead bee laboriously after her. Instantly two or three others rushed to help in the task, and between them they tumbled the carcass over the edge of the foot-board, down among the grass below. Sometimes the burden was of a pure white colour, like the ghost of a bee, perfect in shape, with beady black eyes, and its colourless wings folded round it like a cerecloth. Then it seemed to be less weighty, and its carrier usually shouldered the gruesome thing, and flew away with it high up into the sunshine, and swiftly out of view.

"Those are the undertakers," said the bee-master, ruminatively filling a pipe. "Their work is to carry the dead out of the hive. That last was one of the New Year's brood, and they often die in the cell like that,

especially at the beginning of the season. All that fine drift is the cell-cappings thrown down during the winter from time to time as the stores were broached, and every warm day sees them cleaning up the hive in this way. And now watch these others—these that are coming and going straight in and out of the hive.”

I followed the pointing pipe-stem. The alighting-stage was covered with a throng of bees, each busily intent on some particular task. But every now and then a bee emerged from the hive with a rush, elbowed her way excitedly through the crowd, and darted straight off into the sunshine without an instant's pause. In the same way others were returning, and as swiftly disappearing into the hive.

“Those are the water-carriers,” explained the master. “Water is a constant need in bee-life almost the whole year round. It is used to soften the mixture of honey and pollen with which the young grubs and newly-hatched bees are fed; and the old bees require a lot of it to dilute their winter stores. The river is the traditional watering-place for my bees here, and in the summer it serves very well; but in the winter hundreds are lost either through cold or drowning. And so at this time we give them a water-supply close at home.”

He took up his pitcher, and led the way to the other end of the garden. Here, on a bench, he showed me a long row of glass jars full of water, standing mouth downward, each on its separate plate of blue china. The water was oozing out round the edges of the jars, and scores of the bees were drinking at it side by side, like cattle at a trough.

“We give it them lukewarm,” said the old beeman, “and always mix salt with it. If we had sea-water here, nothing would be better; seaside bees often go down to the shore to drink, as you may prove for yourself on any fine day in summer. Why are all the plates blue? Bees are as fanciful in their ways as our own women-folk, and in nothing more than on the question of colour. Just this particular shade of light blue seems to attract them more than any other. Next to that, pure white is a favourite with them; but they have a pronounced dislike to anything brilliantly red, as all the old writers about bees

noticed hundreds of years ago. If I were to put some of the drinking-jars on bright red saucers now, you would not see half as many bees on them as on the pale blue."

We moved on to the extracting-house, whence the master now fetched his smoker, and a curious knife, with a broad and very keen-looking blade. He packed the tin nozzle of the smoker with rolled brown paper, lighted it, and, by means of the little bellows underneath, soon blew it up into full strength. Then he went to one of the quietest hives, where only a few bees were wandering aimlessly about, and sent a dense stream of smoke into the entrance. A moment later he had taken the roof and coverings off, and was lifting out the central comb-frames one by one, with the bees clinging in thousands all about them.

"Now," he said, "we have come to what is really the most important operation of all in the bee-keeper's work of stimulating his stocks for the coming season. Here in the centre of each comb you see the young brood; but all the cells above and around it are full of honey, still sealed over and untouched by the bees. The stock is behind time. The queen must be roused at once to her responsibilities, and here is one very simple and effective way of doing it."

He took the knife, deftly shaved off the cappings from the honey-cells of each comb, and as quickly returned the frames, dripping with honey, to the brood-nest. In a few seconds the hive was comfortably packed down again, and he was looking round for the next languid stock.

"All these slow, backward colonies," said the bee-master, as he puffed away with his smoker, "will have to be treated after the same fashion. The work must be smartly done, or you will chill the brood; but, in uncapping the stores like this, right in the centre of the brood-nest, the effect on the stock is magical. The whole hive reeks with the smell of honey, and such evidence of prosperity is irresistible. To-morrow, if you come this way, you will see all these timorous bee-folk as busy as any in the garden."

### CHAPTER III.

## A TWENTIETH-CENTURY BEE - FARMER.

It was sunny spring in the bee-garden. The thick elder-hedge to the north was full of young green leaf ; everywhere the trim footways between the hives were marked by yellow bands of crocus-bloom, and daffodils just showing a golden promise of what they would be in a few warm days to come. From a distance I had caught the fresh spring song of the hives, and had seen the bee-master and his men at work in different quarters of the waxen city. But now, drawing nearer, I observed they were intent on what seemed to me a perfectly astounding enterprise. Each man held a spoon in one hand and a bowl of what I now knew to be pea-flour in the other, and I saw that they were busily engaged in filling the crocus-blossoms up to the brim with this inestimable condiment. My friend the bee-master looked up on my approach, and, as was his wont, forestalled the inevitable questioning.

" This is another way of giving it," he explained, " and the best of all in the earliest part of the season. Instinct leads the bees to the flowers for pollen-food when they will not look for it elsewhere; and as the natural supply is very meagre, we just help them in this way."

As he spoke I became rather unpleasantly aware of a change of manners on the part of his winged people. First one and then another came harping round, and, settling comfortably on my face, showed no inclination to move again. In my ignorance I was for brushing them off, but the bee-master came hurriedly to my rescue. He dislodged them with a few gentle puffs from his tobacco-pipe.

" That is always their way in the spring-time," he explained. " The warmth of the skin attracts them, and the best thing to do is to take no notice. If you had knocked them off you would probably have been stung."

" Is it true that a bee can only sting once? " I asked him, as he bent again over the crocus beds.

He laughed.



"What would be the good of a sword to a soldier," he said, "if only one blow could be struck with it? It is certainly true that the bee does not usually sting a second time, but that is only because you are too hasty with her. You brush her off before she has had time to complete her business, and the barbed sting, holding in the wound, is torn away, and the bee dies. But now watch how the thing works naturally."

A bee had settled on his hand as he was speaking. He closed his fingers gently over it, and forced it to sting.

"Now," he continued, quite unconcernedly, "look what really happens. The bee makes two or three lunges before she gets the sting fairly home. Then the poison is injected. Now watch what she does afterwards. See! she has finished her work, and is turning round and round! The barbs are arranged spirally on the sting, and she is twisting it out corkscrew-fashion. Now she is free again! there she goes, you see, weapon and all; and ready to sting again if necessary."

The crocus-filling operation was over now, and the bee-master took up his barrow and led the way to a row of hives in the sunniest part of the garden. He pulled up before the first of the hives, and lighted his smoking apparatus.

"These," he said, as he fell to work, "have not been opened since October, and it is high time we saw how things are going with them."

He drove a few strong puffs of smoke into the entrance of the hive and removed the lid. Three or four thicknesses of warm woollen quilting lay beneath. Under these a square of linen covered the tops of the frames, to which it had been firmly propolised by the bees. My friend began to peel this carefully off, beginning at one corner and using the smoker freely as the linen ripped away.

"This was a full-weight hive in the autumn," he said, "so there was no need for candy-feeding. But they must be pretty near the end of their stores now. You see how they are all together on the three or four frames in the centre of the hive? The other combs are quite empty and deserted. And look how near they are clustering to the top of the bars! Bees always feed upwards, and that means we must begin spring-feeding right away."



THE BEE-MASTER AT WORK: EVENING.





He turned to the barrow, on which was a large box, lined with warm material, and containing bar frames full of sealed honeycomb.

"These are extra combs from last summer. I keep them in a warm cupboard over the stove at about the same temperature as the hive we are going to put them into. But first they must be uncapped. Have you ever seen the Bingham used?"

From the inexhaustible barrow he produced the long knife with the broad, flat blade; and, poising the frame of honeycomb vertically on his knee, he removed the sheet of cell-caps with one dexterous cut, laying the honey bare from end to end. This frame was then lowered into the hive with the uncapped side close against the clustering bees. Another comb, similarly treated, was placed on the opposite flank of the cluster. Outside each of these a second full comb was as swiftly brought into position. Then the sliding inner walls of the brood-nest were pushed up close to the frame, and the quilts and roof restored. The whole seemed the work of a few moments at the outside.

"All this early spring work," said the bee-master, as we moved to the next hive, "is based upon the recognition of one thing. In the south here the real great honey-flow comes all at once: very often the main honey-harvest for the year has to be won or lost during three short weeks of summer. The bees know this, and from the first days of spring they have only the one idea—to create an immense population, so that when the honey-flow begins there may be no lack of harvesters. But against this main idea there is another one—their ingrained and invincible caution. Not an egg will be laid nor a grub hatched unless there is reasonable chance of subsistence for it. The populace of the hive must be increased only in proportion to the amount of stores coming in. With a good spring, and the early honey plentiful, the queen will increase her production of eggs with every day, and the population of the hive will advance accordingly. But if, on the very brink of the great honey-flow, there comes, as is so often the case, a spell of cold windy weather, laying is stopped at once; and, if the cold continues, all hatching grubs are destroyed and the garrison put on half-rations. And so the work of months is undone."

He stooped to bring his friendly pipe to my succour again, for a bee was trying to get down my collar in the most unnerving way, and another had apparently mistaken my mouth for the front-door of his hive. The intruders happily driven off, the master went back to his work and his talk together.

“ But it is just here that the art of the bee-keeper comes in. He must prevent this interruption to progress by maintaining the confidence of the bees in the season. He must create an artificial plenty until the real prosperity begins. Yet, after all, he must never lose sight of the main principle, of carrying out the ideas of the bees, not his own. In good beemanship there is only one road to success : you must study to find out what the bees intend to do, and then help them to do it. They call us bee-masters, but bee-servants would be much the better name. The bees have their definite plan of life, perfected through countless ages, and nothing you can do will ever turn them from it. You can delay their work, or you can even thwart it altogether, but no one has ever succeeded in changing a single principle in bee-life. And so the best bee-master is always the one who most exactly obeys the orders from the hive.”



Pack 1909.

## CHAPTER IV.

### CHLOE AMONG THE BEES.

The Bee-Mistress looked at my card, then put its owner under a like careful scrutiny. In the shady garden where we stood, the sunlight fell in quivering golden splashes round our feet. High overhead, in the purple elm-blossom, the bees and the glad March wind made rival music. Higher still a ripple of lark-song hung in the blue, and a score of rooks were sailing by, filling the morning with their rich, deep clamour of unrest.)

The bee-mistress drew off her sting-proof gloves in thoughtful deliberation.

"If I show you the bee-farm," said she, eyeing me somewhat doubtfully, "and let you see what women have done and are doing in an ideal feminine industry, will you promise to write of us with seriousness? I mean, will you undertake to deal with the matter for what it is—a plain, business enterprise by business people—and not treat it flip-pantly, just because no masculine creature has had a hand in it?"

"This is an attempt," she went on—the needful assurances having been given—"an attempt, and, we believe, a real solution to a very real difficulty. There are thousands of educated women in the towns who have to earn their own bread; and they do it usually by trying to compete with men in walks of life for which they are wholly unsuited. Now, why do they not come out into the pure air and quiet of the countryside, and take up any one of several pursuits open there to a refined, well-bred woman? Everywhere the labourers are forsaking the land and crowding into the cities. This is a farmers' problem, with which, of course, women have nothing to do. The rough, heavy work in the cornfields must always be done either by men or machinery. But there are certain employments, even in the country, that women can invariably undertake better than men, and bee-keeping is one of them. The work is light. It needs

just that delicacy and deftness of touch that only a woman can bring to it. It is profitable. Above all, there is nothing about it, from first to last, of an objectionable character, demanding masculine interference. In poultry-farming, good as it is for women, there must always be a stony-hearted man about the place to do unnameable necessary things in a fluffy back-shed. But bee-keeping is clean, clever, humanising, open-air work—essentially women's work all through."

She had led the way through the scented old-world garden, towards a gate in the farther wall, talking as she went. Now she paused, with her hand on the latch.

"This," she said, "we call the Transition Gate. It divides our work from our play. On this side of it we have the tennis-court and the croquet, and other games that women love, young or old. But it is all serious business on the other side. And now you shall see our latter-day Eden, with its one unimportant omission."

As the door swung back to her touch, the murmur that was upon the air grew suddenly in force and volume. Looking through, I saw an old orchard, spacious, sun-riddled, carpeted with green; and, stretching away under the ancient apple-boughs, long, neat rows of hives, a hundred or more, all alive with bees, winnowing the March sunshine with their myriad wings.

Here and there in the shade-dappled pleasance figures were moving about, busily at work among the hives, figures of women clad in trim holland blouses, and wearing bee-veils, through which only a dim guess at the face beneath could be hazarded. Laughter and talk went to and fro in the sun-steeped quiet of the place; and one of the fair bee-gardeners near at hand—young and pretty, I could have sworn, although her blue gauze veil disclosed provokingly little—was singing to herself, as she stooped over an open hive, and lifted the crowded brood-frames one by one up into the light of day.

"The great work of the year is just beginning with us," explained the bee-mistress. "In these first warm days of spring every hive must be opened and its condition ascertained. Those that are short of stores must be fed; backward colonies must be quickened to a sense of their responsibilities. Clean hives must be substituted for the



**"WHERE THE BEE SUCKS."**

The principal source of honey in England is the white or Dutch clover; but in the orchard country, apple-honey forms a large part of the harvest. Every blossom must be fertilised five distinct times by visiting bees to ensure the perfect fruit.

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## Chloe Among the Bees.

old, winter-soiled dwellings. Queens that are past their prime will have to be dethroned, and their places filled by younger and more vigorous successors. But it is all typically women's work. You have an old acquaintance with the lordly bee-master and his ways; now come and see how a woman manages."

We passed over to the singing lady in the veil, and—from a safe distance—watched her at her work. Each frame, as it was raised out of the seething abyss of the hive, was turned upside down and carefully examined. A little vortex of bees swung round her head, shrilling vindictively. Those on the uplifted comb-frames hustled to and fro like frightened sheep, or crammed themselves head foremost into the empty cells, out of reach of the disturbing light.

"That is a queenless stock," said the bee-mistress. "It is going to be united with another colony, where there is a young, high-mettled ruler in want of subjects."

We watched the bee-gardener as she went to one of the neighbouring hives, subdued and opened it, drew out all the brood-combs, and brought them over in a carrying-rack, with the bees clustering in thousands all about them. Then a scent-diffuser was brought into play, and the fragrance of lavender-water came over to us, as the combs of both hives were quickly sprayed with the perfume, then lowered into the hive, a frame from each stock alternately. It was the old time-honoured plan for uniting bee-colonies, by impregnating them with the same odour, and so inducing the bees to live together peaceably, where otherwise a deadly war might ensue. But the whole operation was carried through with a neat celerity, and light, dexterous handling, I had never seen equalled by any man.

"That girl," said the bee-mistress, as we moved away, "came to me out of a London office a year ago, anæmic, pale as the paper she typed on all day for a living. Now she is well and strong, and almost as brown as the bees she works among so willingly. All my girls here have come to me from time to time in the same way out of the towns, forsaking indoor employment that was surely stunting all growth of mind and body. And there are thousands who would do the same to-morrow, if only the chance could be given them."

We stopped in the centre of the old orchard. Overhead

the swelling fruit-buds glistened against the blue sky. Merry thrush-music rang out far and near. Sun and shadow, the song of the bees, laughing voices, a snatch of an old Sussex chantie, the perfume of violet-beds and nodding gillyflowers, all came over to us through the lichened tree-stems, in a flood of delicious colour and scent and sound. The bee-mistress turned to me, triumphantly.

"Would any sane woman," she asked, "stop in the din and dirt of a smoky city, if she could come and work in a place like this? Bee-keeping for women! do you not see what a chance it opens up to poor toiling folk, pining for fresh air and sunshine, especially to the office-girl class, girls often of birth and refinement—just that kind of poor gentlewomen whose breeding and social station render them most difficult of all to help? And here is work for them, clean, intellectual, profitable; work that will keep them all day long in the open air; a healthy, happy country life, humanly within the reach of all."

"What is wanted," continued the bee-mistress, as we went slowly down the broad main-way of the honey-farm, "is for some great lady, rich in business ideas as well as in pocket, to take up the whole scheme, and to start a network of small bee-gardens for women over the whole land. Very large bee-farms are a mistake, I think, except in the most favourable districts. Bees work only within a radius of two or three miles at most, so that the number of hives that can be kept profitably in a given area has its definite limits. But there is still plenty of room everywhere for bee-farms of moderate size, conducted on the right principles; and there is no reason at all why they should not work together on the co-operative plan, sending all their produce to some convenient centre in each district, to be prepared and marketed for the common good."

"But the whole outcome," she went on, "of a scheme like this depends on the business qualities imported into it. Here, in the heart of the Sussex Weald, we labour together in the midst of almost ideal surroundings, but we never lose sight of the plain, commercial aspect of the thing. We study all the latest writings on our subject, experiment with all novelties, and keep ourselves well abreast of the times in every way. Our system is to make each hive show a clear, definite profit. The annual income is not, and can



## Chloe Among the Bees.

never be, a very large one, but we fare quite simply, and have sufficient for our needs. In any case, however, we have proved here that a few women, renting a small house and garden out in the country, can live together comfortably on the proceeds from their bees; and there is no reason in the world why the idea should not be carried out by others with equal success."

We had made the round of the whole busy, murmuring enclosure, and had come again to the little door in the wall. Passing through and out once more into the world of merely masculine endeavour, the bee-mistress gave me a final word.

"You may think," said she, "that what I advocate, though successful in our own single instance, might prove impracticable on a widely extended scale. Well, do you know that last year close upon three hundred and fifty tons of honey were imported into Great Britain from foreign sources, just because our home apiculturists were unable to cope with the national demand? And this being so, is it too much to think that, if women would only band themselves together and take up bee-keeping systematically, as we have done, all or most of that honey could be produced—of infinitely better quality—here, on our own British soil?"



## CHAPTER V.

### A BEE-MAN OF THE 'FORTIES.

The old bee-garden lay on the verge of the wood. Seen from a distance it looked like a great white china bowl brimming over with roses ; but a nearer view changed the porcelain to a snowy barrier of hawthorn, and the roses became blossoming apple-boughs, stretching up into the May sunshine, where all the bees in the world seemed to have forgathered, filling the air with their rich wild chant.

Coming into the old garden from the glare of the dusty road, the hives themselves were the last thing to rivet attention. As you went up the shady moss-grown path, perhaps the first impresion you became gratefully conscious of was the slow dim quiet of the place—a quiet that had in it all the essentials of silence, and yet was really made up of a myriad blended sounds. Then the sheer carmine of the tulips, in the sunny vista beyond the orchard, came upon you like a trumpet-note through the shadowy aisles of the trees; and after this, in turn, the flaming amber of the marigolds, broad zones of forget-me-nots, like strips of the blue sky fallen, snow-drifts of arabis and starwort, purple pansy-spangles veering to every breeze. And last of all you became gradually aware that every bright nook or shade-dappled corner round you had its nestling bee-skep, half hidden in the general riot of blossom, yet marked by the steadier, deeper song of the homing bees.

To stand here, in the midst of the hives, of a fine May morning, side by side with the old bee-man, and watch with him for the earliest swarms of the year, was an experience that took one back far into another and a kindlier century. There were certain hives in the garden, grey with age and smothered in moss and lichen, that were the traditional mother-colonies of all the rest. The old bee-keeper treasured them as relics of his sturdy manhood, just as he did the percussion fowling-piece over his mantel ; and pointed to one in particular as being close on thirty

years old. Nowadays remorseless science has proved that the individual life of the honey-bee extends to four or five months at most ; but the old bee-keeper firmly believed that some at least of the original members of this colony still flourished in green old age deep in the sombre corridors of the ancient skep. Bending down, he would point out to you, among the crowd on the alighting-board, certain bees with polished thorax and ragged wings worn almost to a stump. While the young worker-bees were charging in and out of the hive at breakneck speed, these superannuated amazons doddered about in the sunlight, with an obvious and pathetic assumption of importance. They were really the last survivors of the bygone winter's brood. Their task of hatching the new spring generation was over ; and now, the power of flight denied to them, they busied themselves in the work of sentinels at the gate, or in grooming the young bees as they came out for their first adventure into the far world of blossoming clover under the hill.

For modern apiculture, with its interchangeable comb-frames and section-supers, and American notions generally, the old bee-keeper harboured a fine contempt. In its place he had an exhaustless store of original bee-knowledge, gathered throughout his sixty odd years of placid life among the bees. His were all old-fashioned hives of straw, hackled and potsherded just as they must have been any time since Saxon Alfred burned the cakes. Each beecolony had its separate three-legged stool, and each leg stood in an earthen pan of water, impassable moat for ants and " wood-li's," and such small honey-thieves. Why the hives were thus dotted about in such admired but inconvenient disorder was a puzzle at first, until you learned more of ancient bee-traditions. Wherever a swarm settled—up in the pink-rosetted apple-boughs, under the eaves of the old thatched cottage, or deep in the tangle of the hawthorn hedge—there, on the nearest open ground beneath, was its inalienable, predetermined home. When, as sometimes happened, the swarm went straight away out of sight over the meadows, or sailed off like a pirouetting grey cloud over the roof of the wood, the old bee-keeper never sought to reclaim it for the garden.

" 'Tis gone to the shires fer change o' air," he would

say, shielding his bleak blue eyes with his hand, as he gazed after it. "'Twould be agen natur' to hike 'em back here along. An' naught but ill-luck an' worry wi'out end.'"

He never observed the skies for tokens of to-morrow's weather, as did his neighbours of the countryside. The bees were his weather-glass and thermometer in one. If they hived very early after noon, though the sun went down in clear gold and the summer night loomed like molten amethyst under the starshine, he would prophesy rain before morning. And sure enough you were wakened at dawn by a furious patter on the window, and the booming of the south-west wind in the pine-clad crest of the hill. But if the bees loitered afield far into the gusty crimson gloaming, and the loud darkness that followed seemed only to bring added intensity to the busy labour-note within the hives, no matter how the wind keened or the griddle of black storm-cloud threatened, he would go on with his evening task of watering his garden, sure of a morrow of cloudless heat to come.

He knew all the sources of honey for miles around ; and, by taste and smell, could decide at once the particular crop from which each sample had been gathered. He would discriminate between that from white clover or sainfoin ; the produce of the yellow charlock wastes ; or the orchard-honey, wherein it seemed the fragrance of cherry-bloom was always to be differentiated from that of apple or damson or pear. He would tell you when good honey had been spoilt by the grosser flavour of sunflower or horse-chestnut ; or when the detestable honey-dew had entered into its composition ; or, the super-caps having been removed too late in the season, the bees had got at the early ivy-blossom, and so degraded all the batch.

Watching bees at work of a fair morning in May, nothing excites the wonder of the casual looker-on more than the mysterious burdens they are for ever bringing home upon their thighs ; semi-globular packs, always gaily coloured, and often so heavy and cumbersome that the bee can hardly drag its weary way into the hive. This is pollen, to be stored in the cells, and afterwards kneaded up with honey as food for the young bees. The old man could say at once by the colour from which flower

each load was obtained. The deep brown-gold panniers came from the gorse-bloom ; the pure snow-white from the hawthorns ; the vivid yellow, always so big and seemingly so weighty, had been filled in the buttercup meads. Now and again, in early spring, a bee would come blundering home with a load of pallid sea-green hue. This came from the gooseberry bushes. And later, in summer, when the poppies began to throw their scarlet shuttles in the corn, many of these airy cargoes would be of a rich velvety black. But there was one kind which the old bee-man had never yet succeeded in tracing to its flowery origin. He saw it only rarely, perhaps not a dozen times in the season—a wonderful deep rose-crimson, singling out its bearer, on its passage through the throng, as with twin danger-lamps, doubly bright in the morning glow.

Keeping watch over the comings and goings of his bees was always his favourite pastime, year in and year out ; but it was in the later weeks of May that his interest in them culminated. He had always had swarms in May as far back as his memory could serve him ; and the oldest hive in the garden was generally the first to swarm. As a rule the bees gave sufficient warning of their intended migration some hours before their actual issue. The strenuous pell-mell business of the hive would come to a sudden and portentous halt. While a few of the bees still darted straight off into the sunshine on their wonted errands, or returned with the usual motley loads upon their thighs, the rest of the colony seemed to have abandoned work altogether. From early morning they hung in a great brown cluster all over the face of the hive, and down almost to the earth beneath ; a churning mass of insect-life that grew bigger and bigger with every moment, glistening like wet seaweed in the morning sun. In the cluster itself there was an uncanny silence. But out of the depths of the hive came a low vibrating murmur, wholly distinct from its usual note ; and every now and again a faint shrill piping sound could be heard, as the old queen worked herself up to swarming frenzy, vainly seeking the while to reach the royal nursery where the rival who was to oust her from her old dominion was even then steadily gnawing through her constraining prison walls.

At these momentous times a quaint ceremonial was



rigidly adhered to by the old bee-master. First he brought out a pitcher of home-brewed ale, from which all who were to assist in the swarm-taking were required to drink, as at a solemn rite. The dressing of the skep was his next care. A little of the beer was sprinkled over its interior, and then it was carefully scoured out with a handful of balm and lavender and mint. After this the skep was covered up and set aside in the shade ; and the old bee-keeper, carrying an ancient battered copper bowl in one gnarled hand, and a great door-key in the other, would lead the way towards the hive, his drab smock-frock mowing the scarlet tulip-heads down as he went.

Sometimes the swarm went off without any preliminary warning, just as if the skep had burst like a bombshell, volleying its living contents into the sky. But oftener it went through the several stages of a regular process. After much waiting and many false alarms, a peculiar stir would come in the throng of bees cumbering the entrance to the hive. Thousands rose on the wing, until the sunshine overhead was charged with them as with countless fluttering atoms of silver-foil ; and a wild joyous song spread far and wide, overpowering all other sounds in the garden. Within the hive the rich bass note had ceased ; and a hissing noise, like a great caldron boiling over, took its place, as the bees inside came pouring out to join the carolling multitude above. Last of all came the queen. Watching for her through the glittering gauzy atmosphere of flashing wings, she was always strangely conspicuous, with her long pointed body of brilliant chestnut-red. She came hustling forth ; stopped for an instant to comb her antennæ on the edge of the foot-board ; then soared straight up into the blue, the whole swarm crowding deliciously in her train.

Immediately the old bee-man commenced a weird tom-tomming on his metal bowl. " Ringing the bees " was an exact science with him. They were supposed to fly higher or lower according to the measure of the music ; and now the great door-key beat out a slow, stately chime like a cathedral bell. Whether this ringing of the old-time skeppists had any real influence on the movements of a swarm has never been absolutely determined ; but there was no doubt in this case of the bee-keeper's perfect faith

## A Bee-Man of the 'Forties.

in the process, or that the bees would commence their descent and settle, usually in one of the apple trees, very soon after the din began.

The rapid growth of the swarm-cluster was always one of the most bewildering things to watch. From a little dark knot no bigger than the clenched hand, it swelled in a moment to the size of a half-gallon measure, growing in girth and length with inconceivable swiftness, until the branch began to droop under its weight. A minute more, and the last of the flying bees had joined the cluster ; the stout apple-branch was bent almost double ; and the completed swarm hung within a few inches of the ground, a long cigar-shaped mass gently swaying to and fro in the flickering light and shade.

The joyous trek-song of the bees, and the clanging melody of key and basin, died down together. The old murmuring, songful quiet closed over the garden again, as water over a cast stone. To hive a swarm thus easily within reach was a simple matter. Soon the old bee-man had got all snugly inside the skep, and the hive in its self-appointed station. And already the bees were settling down to work ; hovering merrily about it, or packed in the fragrant darkness busy at comb-building, or lancing straight off to the clover-fields, eager to begin the task of provisioning the new home.



## CHAPTER VI.

### HEREDITY IN THE BEE-GARDEN.

We were in the great high-road of the modern bee-farm, and had stopped midway down in the heart of the waxen city. On every hand the hives stretched away in long trim rows, and the hot June sunshine was alive with darting bees and fragrant with the smell of new-made honey.

"Swarming?" said the bee-master, in answer to a question I had put to him. "We never allow swarming here. My bees have to work for me, and not for themselves; so we have discarded that old-fashioned notion long ago."

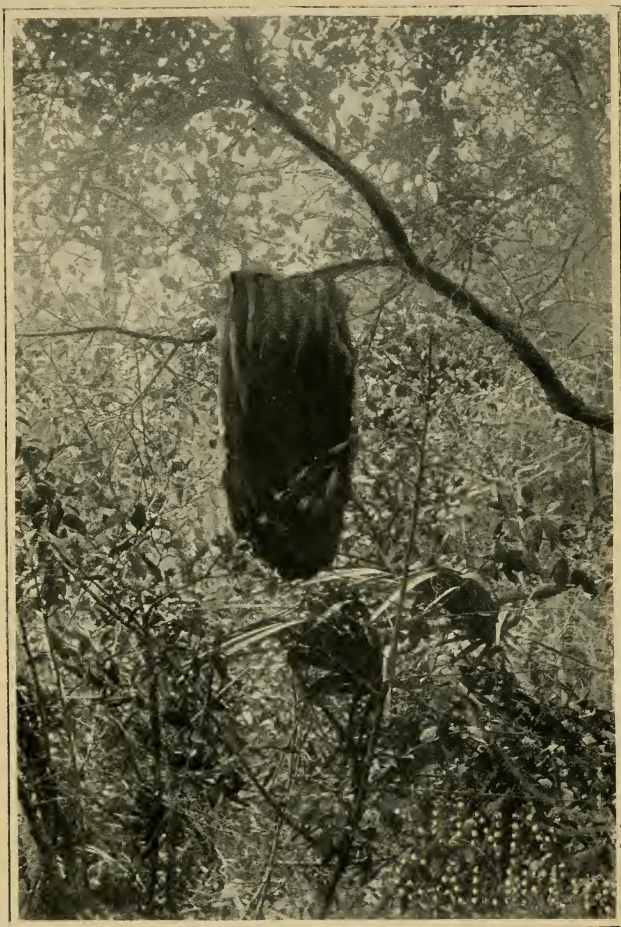
He brought his honey-barrow to a halt, and sat down ruminatively on the handle.

"Swarming," he went on to explain, "is the great trouble in modern bee-keeping. It is a bad legacy left us by the old-time skeppists. With the ancient straw hives and the old benighted methods of working, it was all very well. When bee-burning was the custom, and all the heaviest hives were foredoomed to the sulphur-pit, the best bees were those that gave the earliest and the largest swarms. The more stocks there were in the garden the more honey there would be for market. Swarming was encouraged in every possible way. And so, at last, the steady, stay-at-home variety of honey-bee became exterminated, and only the inveterate swarmers were kept to carry on the strain.

I quoted the time-honoured maxim about a swarm in May being worth a load of hay. The bee-master laughed derisively.

"To the modern bee-keeper," he said "a swarm in May is little short of a disgrace. There is no clearer sign of bad beemanship nowadays than when a strong colony is allowed to weaken itself by swarming on the eve of the great honey-flow, just when strength and numbers are most needed. Of course, in the old days, the maxim held true enough. The straw skeps had room only for a certain number of bees, and when they became too crowded there was nothing for





A NATURAL HONEY-BEES' NEST.



it but to let the colonies split up in the natural way. But the modern frame-hive, with its extending brood-chamber, does away with that necessity. Instead of the old beggarly ten or twelve thousand, we can now raise a population of forty or fifty thousand bees in each hive, and so treble and quadruple the honey-harvest."

"But," I asked him, "do not the bees go on swarming all the same, if you let them?"

"The old instincts die hard," he said. "Some day they will learn more scientific ways; but as yet they have not realised the change that modern bee-keeping has made in their condition. Of course, swarming has its clear, definite purpose, apart from that of relieving the congestion of the stock. When a hive swarms, the old queen goes off with the flying squadron, and a new one takes her place at home. In this way there is always a young and vigorous queen at the head of affairs, and the well-being of the parent stock is assured. But advanced bee-keepers, whose sole object is to get a large honey yield, have long recognised that this is a very expensive way of rejuvenating old colonies. The parent hive will give no surplus honey for that season; and the swarm, unless it is a large and very early one, will do little else than furnish its brood-nest for the coming winter. But if swarming be prevented, and the stock requeened artificially every two years, we keep an immense population always ready for the great honey-flow, whenever it begins."

He took up the heavy barrow, laden with its pile of super-racks, and started trundling it up the path, talking as he went.

"If only the bees could be persuaded to leave the queen-raising to the bee-keeper, and would attend to nothing else but the great business of honey-getting! But they won't—at least, not yet. Perhaps in another hundred years or so the old wild habits may be bred out of them; but at present it is doubtful whether they are conscious of any 'keeping' at all. They go the old tried paths determinedly; and the most that we can accomplish is to undo that part of their work which is not to our liking, or to make a smoother road for them in the direction they themselves have chosen."

"But you said just now," I objected, "that no swarm-

ing was allowed among your bees. How do you manage to prevent it?"

"It is not so much a question of prevention as of cure. Each hive must be watched carefully from the beginning. From the time the queen commences to lay, in the first mild days of spring, we keep the size of the brood nest just a little ahead of her requirements. Every week or two I put in a new frame of empty comb, and when she has ten frames to work upon, and honey is getting plentiful, I begin to put on the store-racks above, just as I am doing now. This will generally keep them to business; but with all the care in the world the swarming fever will sometimes set in. And then I always treat it in this way."

He had stopped before one of the hives, where the bees were hanging in a glistening brown cluster from the alighting-board; idling while their fellows in the bee-garden seemed all possessed with a perfect fury of work. I watched him as he lighted the smoker, a sort of bellows with a wide tin funnel packed with chips of dry rotten wood. He stooped over the hive, and sent three or four dense puffs of smoke into the entrance.

"That is called subduing the bees," he explained, "but it really does nothing of the kind. It only alarms them, and a frightened bee always rushes and fills herself with honey, to be ready for any emergency. She can imbibe enough to keep her for three or four days; and once secure of immediate want, she waits with a sort of fatalistic calm for the development of the trouble threatening."

He halted a moment or two for this process to complete itself, then began to open the hive. First the roof came off; then the woollen quilts and square of linen beneath were gradually peeled from the tops of the comb-frames, laying bare the interior of the hive. Out of its dim depths came up a steady rumbling note like a train in a tunnel, but only a few of the bees got on the wing and began to circle round our heads viciously. The frames hung side by side, with a space of half an inch or so between. The bee-master lifted them out carefully one by one.

"Now, see here," he said, as he held up the first frame in the sunlight, with the bees clinging in thousands to it, "this end comb ought to have nothing but honey in it, but you see its centre is covered with brood-cells. The queen

## Heredity in the Bee-Garden.

has caught the bee-man napping, and has extended her nursery to the utmost limit of the hive. She is at the end of her tether, and has therefore decided to swarm. Directly the bees see this they begin to prepare for the coming loss of their queen by raising another, and to make sure of getting one they always breed three or four."

He took out the next comb and pointed to a round construction, about the size and shape of an acorn, hanging from its lower edge.

"That is a queen cell; and here, on the next comb, are two more. One is sealed over, you see, and may hatch out at any moment; and the others are nearly ready for closing. They are always carefully guarded, or the old queen would destroy them. And now to put an end to the swarming fit."

He took out all the combs but the four centre ones; and, with a goose wing, gently brushed the bees off them into the hive. The six combs were then taken to the extricating-house hard by. The sealed honey-cells on all of them were swiftly uncapped, and the honey thrown out by a turn or two in the centrifugal machine. Now we went back to the hive. Right in the centre the bee-master put a new, perfectly empty comb, and on each side of this came the four principal brood frames with the queen still on them. Outside of these again the combs from which we had extracted all the honey were brought into position. And then a rack of new sections was placed over all, and the hive quickly closed up. The entire process seemed the work of only a few minutes.

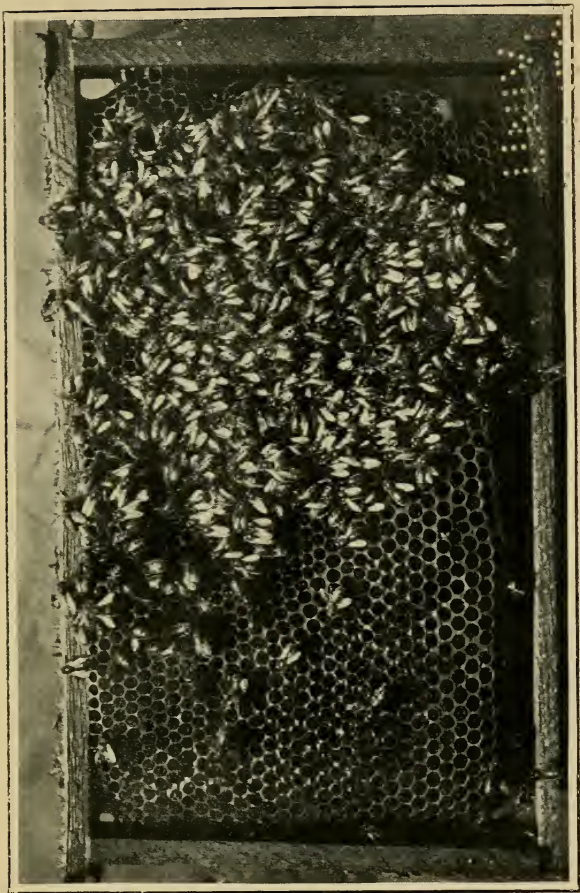
"Now," said the bee-master triumphantly, as he took up his barrow again, "we have changed the whole aspect of affairs. The population of the hive is as big as ever; but instead of a house of plenty it is a house of dearth. The larder is empty, and the only cure for impending famine is hard work; and the bees will soon find that out and set to again. Moreover, the queen has now plenty of room for laying everywhere, and those exasperating prison-cradles, with her future rivals hatching in them, have been done away with. She has no further reason for flight, and the bees, having had all their preparations destroyed, have the best of reasons for keeping her. Above all, there is the new super-rack, greatly increasing the hive space, and they will be given a second and third rack, or even a fourth one, long

before they feel the want of it. Every motive for swarming has been removed, and the result to the bee-master will probably be seventy or eighty pounds of surplus honey, instead of none at all, if the bees had been left to their old primæval ways."

"You must always remember, however," he added, as a final word, "that bees do nothing invariably. 'Tis an old and threadbare saying amongst bee-keepers, but there's nothing truer under the sun. Bees have exceptions to almost every rule. While all other creatures seem to keep blindly to one pre-ordained way in everything they do, you can never be certain at any time that bees will not reverse their ordinary course to meet circumstances you may know nothing of. And that is all the more reason why the bee-master himself should allow no deviations in his own work about the hives : his ways must be as the ways of the Medes and Persians."







#### COMB OF BEES, WITH QUEEN.

The photograph shows an old brood-comb. The cells on right of picture are used or raising worker-bees; the larger ones on left are drone-cells. The queen is seen alone on the lower part of comb, to the left. The sealed brood, visible in the throng of nurse-bees to the right, has its cappings of combined pollen and wax, and the young bee eats its way through, after an incarceration of about thirteen days. The queen-bee is raised in a much larger cell of acorn shape, which hangs vertically from the edge of comb. An old queen-cell is shown at right-hand lower corner of comb.

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## CHAPTER VII.

### NIGHT ON A HONEY-FARM.

The sweet summer dark was over the bee-garden. On every side, as I passed through, the starlight showed me the crowding roofs of the waxen city ; and beyond these I could just make out the dim outline of the extracting-house, with a cheerful glow of lamplight streaming out from window and door. The rumble of machinery and the voices of the bee-master and his men grew louder as I approached. A great business seemed to be going forward within. In the centre of the building stood a strange-looking engine, like a brewer's vat on legs. It was eight or nine feet broad and some five feet high ; and a big horizontal wheel lay within the great circle, completely filling its whole circumference. As I entered, the wheel was going round with a deep reverberating noise as fast as two strong men could work the gearing ; and the bee-master stood close by, carefully timing the operation.

" Halt ! " he shouted. The great wheel-of-fortune stopped. A long iron bar was pulled down and the wheel rose out of the vat. Now I could see that its whole outer periphery was covered with frames of honeycomb, each in its separate gauze-wire cage. The bee-master tugged a lever. The cages—there must have been twenty-five or thirty of them—turned over simultaneously like single leaves of a book, bringing the other side of each comb into place. The wheel dropped down once more, and swung round again on its giddy journey. From my place by the door I could hear the honey driving out against the sides of the vat like heavy rain.

" Halt ! " cried the bee-master again. Once more the big wheel rose, glistening and dripping, into the yellow lamplight. And now a trolley was pushed up laden with more honeycomb ready for extraction. The wire-net cages were opened, the empty combs taken out, and full ones deftly put in their place. The wheel plunged down again

into its mellifluous cavern, and began its deep song once more. The bee-master gave up his post to the foreman, and came towards me, wiping the honey from his hands. He was very proud of his big extractor, and quite willing to explain the whole process. "In the old days," he said, "the only way to get the honey from the comb was to press it out. You could not obtain your honey without destroying the comb, which at this season of the year is worth very much more than the honey itself; for if the combs can be emptied and restored perfect to the hive, the bees will fill them again immediately, without having to waste valuable time in the height of the honey-flow by stopping to make new comb. And when the bees are wax-making they are not only prevented from gathering honey, but have to consume their own stores. While they are making one pound of comb they will eat seventeen or eighteen pounds of honey. So the man who hit upon the idea of drawing the honey from the comb by centrifugal force did a splendid thing for modern bee-farming. English honey was nothing until the extractor came and changed bee-keeping from a mere hobby into an important industry. But come and see how the thing is done from the beginning."

He led the way towards one end of the building. Here three or four men were at work at a long table surrounded by great stacks of honeycombs in their oblong wooden frames. The bee-master took up one of these. "This," he explained, "is the bar-frame just as it comes from the hive. Ten of them side by side exactly fill a box that goes over the hive proper. The queen stays below in the brood-nest, but the worker-bees come to the top to store the honey. Then, every two or three days, when the honey-flow is at its fullest, we open the super, take out the sealed combs, and put in combs that have been emptied by the extractor. In a few days these also are filled and capped by the bees, and are replaced by more empty combs in the same way; and so it goes on to the end of the honey-harvest."

We stood for a minute or two watching the work at the table. It went on at an extraordinary pace. Each workman seized one of the frames and poised it vertically over a shallow metal tray. Then, from a vessel of steaming hot water that stood at his elbow, he drew a long, flat-bladed

## Night on a Honey-Farm.

knife, and with one swift slithering cut removed the whole of the cell-cappings from the surface of the comb. At once the knife was thrown back into its smoking bath, and a second one taken out, with which the other side of the comb was treated. Then the comb was hung in the rack of the trolley, and the keen hot blades went to work on another frame. As each trolley was fully loaded it was whisked off to the extracting-machine and another took its place.

"All this work," explained the bee-master, as we passed on, "is done after dark, because in the daytime the bees would smell the honey and would besiege us. So we cannot begin extracting until they are all safely hived for the night." He stopped before a row of bulky cylinders. "These," he said, "are the honey ripeners. Each of them holds about twenty gallons, and all honey is kept here for three or four days to mature before it is ready for market. If we were to send it out at once it would ferment and spoil. In the top of each drum there are fine wire strainers, and the honey must run through these, and finally through thick flannel, before it gets into the cylinder. Then, when it is ripe, it is drawn off and bottled."

One of the big cylinders was being tapped at the moment. A workman came up with a kind of gardener's water-tank on wheels. The valve of the honey-vat was opened, and the rich fluid came gushing out like liquid amber. "This is all white-clover honey," said the bee-master, tasting it critically. "The next vat there ought to be pure sainfoin. Sometimes the honey has a distinct almond flavour; that is when hawthorn is abundant. Honey varies as much as wine. It is good or bad according to the soil and the season. Where the horse-chestnut is plentiful the honey has generally a rank taste. But this is a sheep-farmers' country, where they grow thousands of acres of rape and lucerne and clover for sheep-feed; and nothing could be better for the bees."

By this time the gardener's barrow was full to the brim. We followed it as it was trundled heavily away to another part of the building. Here a little company of women were busy filling the neat glass jars, with their bright screw-covers of tin; pasting on the label of the big London stores, whither most of the honey was sent; and packing

the jars into their travelling-cases ready for the railway-van in the morning. The whole place reeked with the smell of new honey and the faint, indescribable odour of the hives. As we passed out of the busy scene of the extracting-house into the moist dark night again, this peculiar fragrance struck upon us overpoweringly. The slow wind was setting our way, and the pungent odour from the hives came up on it with a solid, almost stifling, effect.

"They are fanning hard to-night," said the bee-master, as we stopped halfway down the garden. "Listen to the noise they're making!"

The moon was just tilting over the tree-tops. In its dim light the place looked double its actual size. We seemed to stand in the midst of a great town of bee-dwellings, stretching vaguely away into the darkness. And from every hive there rose the clear deep murmur of the ventilating bees.

The bee-master lighted his lantern, and held it down close to the entrance of the nearest hive.

"Look how they form up in rows, one behind the other, with their heads to the hive; and all fanning with their wings! They are drawing the hot air out. Inside there is another regiment of them, but those are facing the opposite way, and drawing the cool air in. And so they keep the hive always at the right temperature for honey-making, and for hatching out the young bees."

"Who was it," he asked ruminatively, as the gate of the bee-garden closed at last behind us, and we were walking homeward through the glimmering dusk of the lane—"who was it first spoke of the 'busy bee'? Busy! 'Tis not the word for it! Why, from the moment she is born to the day she dies the bee never rests nor sleeps! It is hard work night and day, from the cradle-cell to the grave; and in the honey-season she dies of it after a month or so. It is only the drone that rests. He is very like some humans I know of his own sex; he lives an idle life, and leaves the work to the womenkind. But the drone has to pay for it in the end, for the drudging woman-bee revolts sooner or later. And then she kills him. In bee-life the drone always dies a violent death; but in human life—well, it seems to me a little bee-justice wouldn't be amiss with some of them."

## CHAPTER VIII.

### IN A BEE-CAMP.

“ ’Tis a good thing—life; but ye never know how good, really, till you’ve followed the bees to the heather.”

It was an old saying of the bee-master’s, and it came again slowly from his lips now, as he knelt by the camp-fire, watching the caress of the flames round the bubbling pot. We were in the heart of the Sussex moorland, miles away from the nearest village, still farther from the great bee-farm where, at other times, the old man drove his thriving trade. But the bees were here—a million of them perhaps—all singing their loudest in the blossoming heather that stretched away on every side to the far horizon, under the sweltering August sun.

Getting the bees to the moors was always the chief event of the year down at the honey-farm. For days the waggons stood by the laneside, all ready to be loaded up with the best and most populous hives; but the exact moment of departure depended on one very uncertain factor. The white-clover crop was almost at an end. Every day saw the acreage of sainfoin narrowing, as the sheep-folds closed in upon it, leaving nothing but bare yellow waste, where had been a rolling sea of crimson blossom. But the charlock lay on every hillside like cloth-of-gold. Until harvest was done the fallows were safe from the ploughshare, and what proved little else than a troublesome weed to the farmer was like golden guineas growing to every keeper of bees.

But at last the new moon brought a sharp chilly night with it, and the long-awaited signal was given. Coming down with the first grey glint of morning from the little room under the thatch, I found the bee-garden in a swither of commotion. A faint smell of carbolic was on the air, and the shadowy figures of the bee-master and his men were hurrying from hive to hive, taking off the super-racks that stood on many three and four stories high. The honey-



barrows went to and fro groaning under their burdens; and the earliest bees, roused from their rest by this unwonted turmoil, filled the grey dusk with their high timorous note.

The bee-master came over to me in his white overalls, a weird apparition in the half-darkness.

"'Tis the honey-dew," he said, out of breath, as he passed by. "The first cold night of summer brings it out thick on every oak-leaf for miles around; and if we don't get the supers off before the bees can gather it, the honey will be blackened and spoiled for market."

He carried a curious bundle with him, an armful of fluttering pieces of calico, and I followed him as he went to work on a fresh row of hives. From each bee-dwelling the roof was thrown off, the inner coverings removed, and one of the squares of cloth—damped with the carbolic solution—quickly drawn over the topmost rack. A sudden fearsome buzzing uprose within, and then a sudden silence. There is nothing in the world a bee dreads more than the smell of carbolic acid. In a few seconds the super-racks were deserted, the bees crowding down into the lowest depths of the hives. The creaking barrows went down the long row in the track of the master, taking up the heavy racks as they passed. Before the sun was well up over the hill-brow the last load had been safely gathered in, and the chosen hives were being piled into the waggons, ready for the long day's journey to the moors.

All this was but a week ago; yet it might have been a week of years, so completely had these rose-red highland solitudes accepted our invasion, and absorbed us into their daily round of sun and song. Here, in a green hollow of velvet turf, right in the heart of the wilderness, the camp had been pitched—the white bell-tents with their skirts drawn up, showing the spindle-legged field-bedsteads within; the filling-house, made of lath and gauze, where the racks could be emptied and recharged with the little white wood section-boxes, safe from marauding bees; the honey-store, with its bee-proof crates steadily mounting one upon the other, laden with rich brown heather-honey—the finest sweet-food in the world. And round the camp, in a vast spreading circle, stood the hives—a hundred or more—knee-deep in the rosy thicket, each facing outward, and each a whirling vortex of life from early dawn to the



"WARRILOW."



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## In a Bee-Camp.

last amber gleam of sunset abiding under the flinching silver of the stars.

The camp-fire crackled and hissed, and the pot sent forth a savoury steam into the morning air. From the heather the deep chant of busy thousands came over on the wings of the breeze, bringing with it the very spirit of serene content. The bee-master rose and stirred the pot ruminatively.

"B'iled rabbit!" said he, looking up, with the light of old memories coming in his gnarled brown face. "And forty years ago, when I first came to the heather, it used to be b'iled rabbit too. We could set a snare in those days as well as now. But 'twas only a few hives then, a dozen or so of old straw skeps on a barrow, and naught but the starry night for a roof-tree, or a sack or two to keep off the rain. None of your women's luxuries in those times!"

He looked round rather disparagingly at his own tent, with its plain truckle-bed, and tin wash-bowl, and other deplorable signs of effeminate self-indulgence.

"But there was one thing," he went on "one thing we used to bring to the moors that never comes now. And that was the basket of sulphur-rag. When the honey-flow is done, and the waggons come to fetch us home again, all the hives will go back to their places in the garden none the worse for their trip. But in the old days of bee-burning never a bee of all the lot returned from the moors. Come a little way into the long grass yonder, and I'll show ye the way of it."

With a stick he threshed about in the dry bents, and soon lay bare a row of circular cavities in the ground. They were almost choked up with moss and the rank undergrowth of many years; but originally they must have been each about ten inches broad by as many deep.

"These," said the bee-master, with a shamefaced air of confession, "were the sulphur-pits. I dug them the first year I ever brought hives to the heather; and here, for twenty seasons or more, some of the finest and strongest stocks in Sussex were regularly done to death. 'Tis a drab tale to tell, but we knew no better then. To get the honey away from the bees looked well-nigh impossible with thousands of them clinging all over the combs. And it never occurred to any of us to try the other way, and get the bees

to leave the honey. Yet bee-driving, 'tis the simplest thing in the world, as every village lad knows to-day."

We strolled out amongst the hives, and the bee-master began his leisurely morning round of inspection. In the bee-camp, life and work alike took their time from the slow march of the summer sun, deliberate, imperturbable, across the pathless heaven. The bees alone keep up the heat and burden of the day. While they were charging in and out of the hives, possessed with a perfect fury of labour, the long hours of sunshine went by for us in immemorial calm. Like the steady rise and fall of a windless tide, darkness and day succeeded one another; and the morning splash in the dew-pond on the top of the hill, and the song by the camp-fire at night, seemed divided only by a dim formless span too uneventful and happy to be called by the old portentous name of Time.

And yet every moment had its business, not to be delayed beyond its imminent season. Down in the bee-farm the work of honey-harvesting always carried with it a certain stress and bustle. The great centrifugal extractor would be roaring half the night through, emptying the super-combs, which were to be put back into the hives on the morrow, and refilled by the bees. But here, on the moors, modern bee-science is powerless to hurry the work of the sunshine. The thick heather-honey defies the extracting-machine, and cannot be separated without destroying the comb. Moorland honey—except where the wild sage is plentiful enough to thin down the heather sweets—must be left in the virgin comb; and the beeman can do little more than look on as vigilantly as may be at the work of his singing battalions, and keep the storage-space of the hives always well in advance of their need.

Yet there is one danger—contingent at all seasons of bee-life, but doubly to be guarded against during the critical time of the honey-flow.

As we loitered round the great circle, the old bee-keeper halted in the rear of every hive to watch the contending streams of workers, the one rippling out into the blue air and sunshine, the other setting more steadily homeward, each bee weighed down with her load of nectar and pale grey pollen, as she scrambled desperately through the opposing crowd and vanished into the seething darkness

within. As we passed each hive, the old bee-man carefully noted its strength and spirit, comparing it with the condition of its neighbours on either hand. At last he stopped by one of the largest hives, and pointed to it significantly.

"Can ye see aught amiss?" he asked, hastily rolling his shirt-sleeves up to the armpit.

I looked, but could detect nothing wrong. The multitude round the entrance to this hive seemed larger and busier than with any other, and the note within as deeply resonant.

"Ay! they're erpulous enough," said the bee-master, as he lighted his tin-nozzled bellows-smoker and coaxed it into full blast. "But hark to the din! 'Tis not work this time; 'tis mortal fear of something. Flying strong? Ah, but only a yard or two up, and back again. There's trouble at hand, and they've only just found it out. The matter is, they have lost their queen."

He was hurriedly removing the different parts of the hive as he spoke. A few quick puffs from the smoker were all that was needed at such a time. With no thought but for the tragedy that had come upon them, the bees were rushing madly to and fro in the hive, not paying the slightest attention to the fact that their house was falling asunder piecemeal, and the sudden sunshine riddling it through and through, where had been nothing but Cimmerian darkness before. Under the steady slow hand of the master, the teeming section-racks came off one by one, until the lowest chamber—the nursery of the hive—was reached, and a note like imprisoned thunder in miniature burst out upon us.

The old bee-keeper lifted out the brood-frames, and subjected each to a lynx-eyed scrutiny. At last he dived his bare hand down into the thick of the bees, and brought up something to show me. It was the dead queen; twice the size of all the rest, with short oval wings and a shining red-gold body, strangely conspicuous among the score or so of dun-coloured workers which still crowded round her on the palm of his hand.

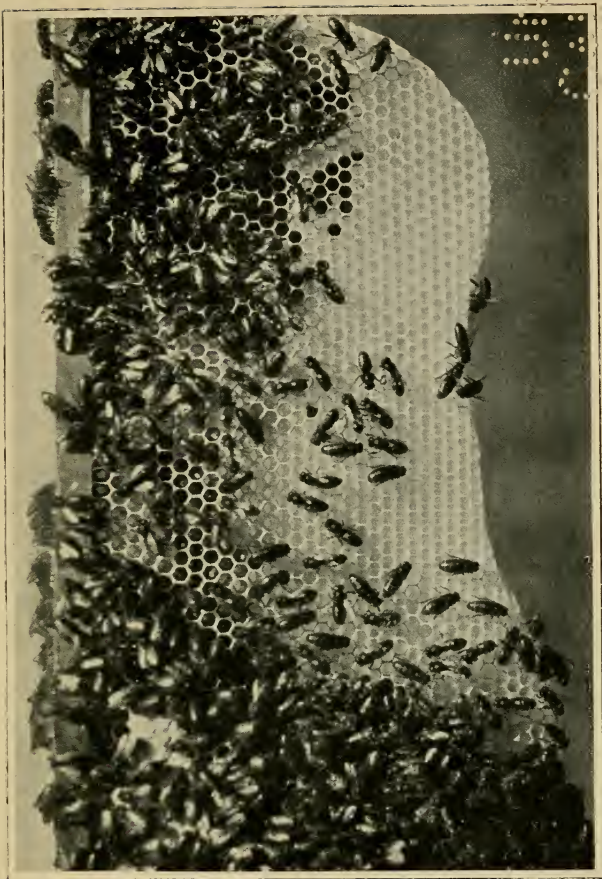
"In the old days," said the bee-master, "before the movable-comb hive was invented, if the queen died like this, it would throw the whole colony out of gear for the rest of the season. Three weeks must elapse before a new

queen could be hatched and got ready for work; and then the honey-harvest would be over. But see how precious time can be saved under the modern system."

He led the way to a hive which stood some distance apart from the rest. It was much smaller than the others, and consisted merely of a row of little boxes, each with its separate entrance, but all under one common roof. The old bee-man opened one of the compartments, and lifted out its single comb-frame, on which were clustered only a few hundred bees. Searching among these with a wary forefinger, at last he seized one by the wings and held it up to view.

"This is a spare queen," said he. "'Tis always wise to bring a few to the heather, against any mischance. And now we'll give her to the motherless bees; and in an hour or two the stock will be at work again as busily as ever."





### HONEY - COMB.

This photograph shows the comb in all stages of its construction. The bees work downwards from both sides simultaneously. The upper part of comb is seen finished. The cells in centre are being filled with honey. Those on left are full, and sealed over with wax. The dark cells on right of picture contain stores of pollen, which is used, with honey and water, as food for the young bees during their larva stage.

*[Faint, illegible handwritten notes or bleed-through from the reverse side of the page.]*



## CHAPTER IX.

### THE BEE-HUNTERS.

“ In that bit of forest,” said the bee-master, indicating a long stretch of neighbouring woodland with one comprehensive sweep of his thumb, “ there are tons of honey waiting for any man who knows how to find it.”

I had met and stopped the old bee-keeper and his men, bent on what seemed a rather singular undertaking. They carried none of the usual implements of their craft, but were laden up with the paraphernalia of woodmen—rip-saws and hatchets and climbing-irons, and a mysterious box or two, the use of which I could not even guess at. But the bee-master soon made his errand plain.

“ Tons of honey,” he went on. “ And we are going to look for some of it. There have been wild bees, I suppose, in the forest-country from the beginning of things. Then see how the land lies. There are villages all round, and for ages past swarms have continually got away from the bee-gardens, and hived themselves in the hollow trunks of the trees. Then every year these stray colonies have sent out their own swarms again, until to-day the woods are full of bees, wild as wolves and often as savage, guarding stores that have been accumulating perhaps for years and years.”

He shifted his heavy kit from one shoulder to the other. Overhead the sun burned in a cloudless August sky, and the willow-herb by the roadside was full of singing bees and the flicker of white butterflies. In the hedgerows there were more bees plundering the blackberry blossom, or sounding their vagrant note in the white convolvulus-bells which hung in bridal wreaths at every turn of the way. Beyond the hedgerow the yellow cornlands flowed away over hill and dale under the torrid light ; and each scarlet poppy that hid in the rustling gold-brown wheat had its winged musician chanting at its portal. As I turned and

went along with the expedition, the bee-master gave me more details of the coming enterprise.

"Mind you," he said, "this is not good beemanship as the moderns understand it. It is nothing but bee-murder, of the old-fashioned kind. But even if the bees could be easily taken alive, we should not want them in the apiary. Blood counts in bee-life, as in everything else; and these forest-bees have been too long under the old natural conditions to be of any use among the domestic strain. However, the honey is worth the getting, and if we can land only one big stock or two it will be a profitable day's work."

We had left the hot, dusty lane, and taken to the field-path leading up through a sea of white clover to the woods above.

"This is the after-crop," said the bee-master, as he strode on ahead with his jingling burden. "The second cut of Dutch clover always gives the most honey. Listen to the bees everywhere—it is just like the roar of London heard from the top of St. Paul's! And most of it here is going into the woods, more's the pity. Well, well; we must try to get some of it back to-day."

Between the verge of the clover-field and the shadowy depths of the forest ran a broad green waggon-way; and here we came to a halt. In the field we had lately traversed the deep note of the bees had sounded mainly underfoot; but now it was all above us, as the honey-makers sped to and fro between the sunlit plane of blossom and their hidden storehouses in the wood. The upper air was full of their music; but, straining the sight to its utmost, not a bee could be seen.

"And you will never see them," said the bee-master, watching me as he unpacked his kit. "They fly too fast and too high. And if you can't see them go by out here in the broad sunshine, how will you track them to their lair through the dim light under the trees? And yet," he went on, "that is the only way to do it. It is useless to search the wood for their nests; you might travel the whole day through and find nothing. The only plan is to follow the laden bees returning to the hive. And now watch how we do that in Sussex."

From one of the boxes he produced a contrivance like

## The Bee-Hunters.

a flat tin saucer mounted on the top of a pointed stick. He stuck this in the ground near the edge of the clover-field so that the saucer stood on a level with the highest blossoms. Now he took a small bottle of honey from his pocket, emptied it into the tin receptacle, and beckoned me to come near. Already three or four bees had discovered this unawaited feast and settled on it ; a minute more and the saucer was black with crowding bees. Now the bee-master took a wire-gauze cover and softly inverted it over the saucer. Then, plucking his ingenious trap up by the roots, he set off towards the forest with his prisoners, followed by his men.

"These," said he, "are our guides to the secret treasure-chamber. Without them we might look for a week and never find it. But now it is all plain sailing, as you'll see."

He pulled up on the edge of the wood. By this time every bee in the trap had forsaken the honey, and was clambering about in the top of the dome-shaped lid, eager for flight.

"They are all full of honey," said the bee-master, "and the first thing a fully-laden bee thinks of is home. And now we will set the first one on the wing."

He opened a small valve in the trap-cover, and allowed one of the bees to escape. She rose into the air, made a short circle, then sped away into the gloom of the wood. In a moment she was lost to sight, but the main direction of her course was clear ; and we all followed helter-skelter until our leader called another halt.

"Now watch this one," he said, pressing the valve again.

This time the guide rose high into the dim air, and was at once lost to my view. But the keen eyes of the old bee-man had challenged her.

"There she goes!" he said, pointing down a long shadowy glade somewhat to his left. "Watch that bit of sunlight away yonder!"

I followed this indication. Through the dense wood-canopy a hundred feet away the sun had thrust one long golden tentacle ; and I saw a tiny spark of light flash through into the gloom beyond. We all stampeded after it.

Another and another of the guides was set free, each one taking us deeper into the heart of the forest, until at last the bee-master suddenly stopped and held up his hand.

"Listen!" he said under his breath.

Above the rustling of the leaves, above the quiet stir of the undergrowth and the crooning of the stock-doves, a shrill insistent note came over to us on the gentle wind. The bee-man led the way silently into the darkest depths of the wood. Halting, listening, going swiftly forward in turn, at last he stopped at the foot of an old decayed elm-stump. The shrill note we had heard was much louder now, and right overhead. Following his pointing forefinger, I saw a dark cleft in the old trunk about twenty feet above; and round this a cloud of bees was circling, filling the air with their rich deep labour-song. At the same instant, with a note like the twang of a harp-string, a bee came at me and fastened a red-hot fish-hook into my cheek. The old bee-keeper laughed.

"Get this on as soon as you can," he said, producing a pocketful of bee-veils, and handing me one from the bunch. "These are wild bees, thirty thousand of them, maybe; and we shall need all our armour to-day. Only wait till they find us out! But now rub your hands all over with this."

Every man scrambled into his veil, and anointed his hands with the oil of wintergreen—the one abiding terror of vindictive bees. And then the real business of the day commenced.

The bee-master had strapped on his climbing-irons. Now he struck his way slowly up the tree, tapping the wood with the butt-end of a hatchet inch by inch as he went. At last he found what he wanted. The trunk rang hollow about a dozen feet from the ground. Immediately he began to cut it away. The noise of the hatchet woke all the echoes of the forest. The chips came fluttering to the earth. The rich murmur overhead changed to an angry buzzing. In a moment the bees were on the worker in a vortex of humming fury, covering his veil, his clothes, his hands. But he worked on unconcernedly until he had driven a large hole through the crust of the tree and laid bare the glistening honeycomb within. Now I saw him take from a sling-bag at his side handful after handful of

## The Bee-Hunters.

some yellow substance and heap it into the cavity he had made. Then he struck a match, lighted the stuff, and came sliding swiftly to earth again. We all drew off and waited.

“That,” explained the bee-master, as he leaned on his woodman’s axe out of breath ; “is cotton-waste, soaked in creosote, and then smothered in powdered brimstone. See ! it is burning famously. The fumes will soon fill the hollow of the tree and settle the whole company. Then we shall cut away enough of the rotten wood above to get all the best of the combs out ; there are eighty pounds of good honey up there, or I’m no bee-man. And then it’s back to the clover-field for more guide-bees, and away on a new scent.”



## CHAPTER X.

### THE PHYSICIAN IN THE HIVE.

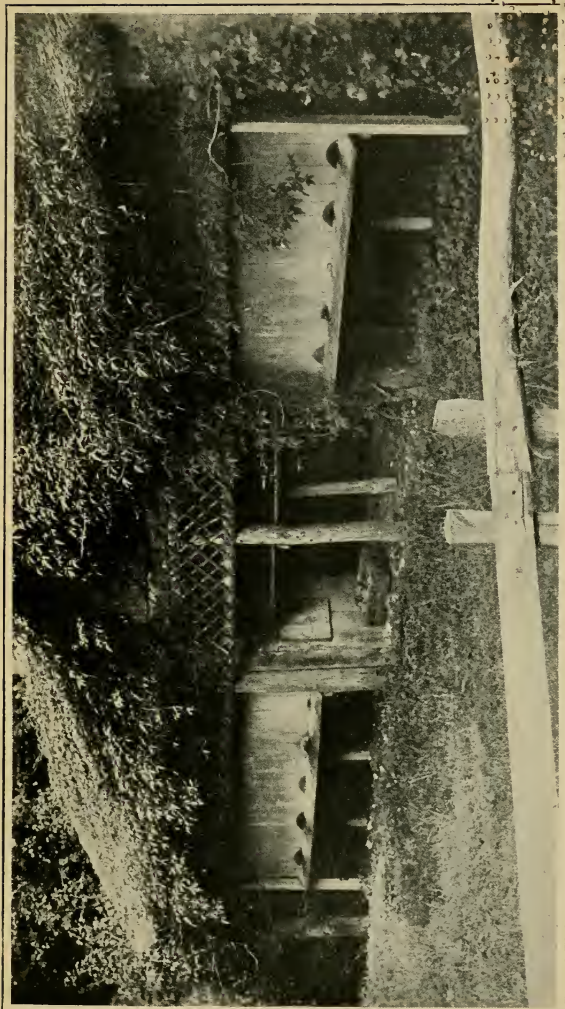
It was a strange procession coming up the red-tiled path of the bee-garden. The bee-master led the way in his Sunday clothes, followed by a gorgeous footman, powdered and cockaded, who carried an armful of wraps and cushions. Behind him walked two more, supporting between them a kind of carrying-chair, in which sat a florid old gentleman in a Scotch plaid shawl; and behind these again strode a silk-hatted, black-frocked man, carefully regulating the progress of the cavalcade. Through the rain of autumn leaves, on the brisk October morning, I could see, afar off, a carriage waiting by the lane-side; a big old-fashioned family vehicle, with cockaded servants, a pair of champing greys, and a glitter of gold and scarlet on the panel, where the sunbeams struck on an elaborate coat-of-arms.

The whole procession made for the extracting-house, and all work stopped at its approach. The great centrifugal machine ceased its humming. The doors of the packing-room were closed, shutting off the din of saw and hammer. Over the stone floor in front of the furnace—where a big caldron of metheglin was simmering—a carpet was hastily unrolled, and a comfortable couch brought out and set close to the cheery blaze.

And now the strangest part of the proceedings commenced. The old gentleman was brought in, partially disrobed, and transferred to the couch by the fireside. He seemed in great trepidation about something. He kept his gold eyeglasses turned on the bee-master, watching him with a sort of terrified wonder, as the old bee-man produced a mysterious box, with a lid of perforated zinc, and laid it on the table close by. From my corner the whole scene was strongly reminiscent of the ogre's kitchen in the fairy-tale; and the muffled sounds from the packing-room might have been the voice of the ogre himself, complaining at the lateness of his dinner.

Now, at a word from the black-coated man, the bee-master opened his box. A loud angry buzzing uprose, and





AN OLD-FASHIONED BEE HOUSE.

Bee houses have largely gone out of fashion, as being too restricted and cumbersome for modern requirements. The house shown is about a hundred years old, and originally held about twenty straw hives in two tiers. It has lately been converted to the modern movable-comb system, and holds ten stocks. Each entrance is painted a different colour to assist the bees in distinguishing their own home from their neighbours'.





## The Physician in the Hive.

about a dozen bees escaped into the air, and flew straight for the window-glass. The bee-master followed them, took one carefully by the wings, and brought it over to the old gentleman. His apprehensions visibly redoubled. The doctor seized him in an iron, professional grip.

"Just here, I think. Close under the shoulder-blade. Now, your lordship . . ."

Viciously the infuriated bee struck home. For eight or ten seconds she worked her wicked will on the patient. Then, turning round and round, she at last drew out her sting, and darted back to the window.

But the bee-master was ready with another of his living stilettoes. Half a dozen times the operation was repeated on various parts of the suffering patient's body. Then the old gentleman—who, by this time, had passed from whimpering through the various stages of glowing indignation to sheer undisguised profanity—was restored to his apparel. The procession was re-formed, and the bee-master conducted it to the waiting carriage, with the same ceremony as before.

As we stood looking after the retreating vehicle, the old bee-man entered into explanations.

"That," said he, "is Lord H——, and he has been a martyr to rheumatism these ten years back. I could have cured him long ago if he had only come to me before, as I have done many a poor soul in these parts; but he, and those like him, are the last to hear of the physician in the hive. He will begin to get better now, as you will see. He is to be brought here every fortnight; but in a month or two he will not need the chair. And before the winter is out he will walk again as well as the best of us."

We went slowly back through the bee-farm. The working-song of the bees seemed as loud as ever in the keen October sunshine. But the steady deep note of summer was gone; and the peculiar bee-voice of autumn—shrill, anxious, almost vindictive—rang out on every side.

"Of course," continued the bee-master, "there is nothing new in this treatment of rheumatism by bee-stings. It is literally as old as the hills. Every bee-keeper for the last two thousand years has known of it. But it is as much as a preventive as a cure that the acid in a bee's sting is valuable. The rarest thing in the world is to find

a bee-keeper suffering from rheumatism. And if every one kept bees, and got stung occasionally, the doctors would soon have one ailment the less to trouble about.

"But," he went on, "there is something much pleasanter and more valuable to humanity, ill or well, to be got from the hives. And that is the honey itself. Honey is good for old and young. If mothers were wise they would never give their children any other sweet food. Pure ripe honey is sugar with the most difficult and most important part of digestion already accomplished by the bees. Moreover, it is a safe and very gentle laxative; and before each comb-cell is sealed up the bee injects a drop of acid from her sting, and so gives to the honey an aseptic property. That is why it is so good for sore throats or chafed skins."

We had got back to the extracting house, where the great caldron of metheglin was still bubbling over the fire. The old bee-keeper relieved himself of his stiff Sunday coat, donned his white linen over-alls, and fell to skimming the pot.

"There is another use," said he, after a ruminative pause, "to which honey might be put, if only doctors could be induced to seek curative power in ancient homely things, as they do with the latest new poisons from Germany. That is in the treatment of obesity. Fat people, who are ordered to give up sugar, ought to use honey instead. In my time I have persuaded many a one to try it, and the result has always been the same—a steady reduction in weight, and better health all round. Then, again, dyspeptic folk would find most of their troubles vanish if they substituted the already half-digested honey wherever ordinary sugar forms part of their diet. And did you ever try honey to sweeten tea or coffee? Of course, it must be pure, and without any strongly-marked flavour; but no one would ever return to sugar if once good honey had been tried in this way, or in any kind of cookery where sugar is used."

The bee-master ran his fingers through his hair, of which he had a magnificent iron-grey crop. The fingers were undeniably sticky; but it was an old habit of his, when in thoughtful mood, and the action seemed to remind him of something. His eyes twinkled merrily.

"Now," said he, "you are a writer for the papers, and

## The Physician in the Hive.

you may therefore want to go into the hair-restoring business some day. Well, here is a recipe for you. It is nothing but honey and water, in equal parts, but it is highly recommended by all the ancient writers on beemanship. Have I tried it? Well, no; at least, not intentionally. But in extracting honey it gets into most places, the hair not excepted. At any rate, honey as a hair-restorer was one of the most famous nostrums of the Middle Ages, and may return to popular favour even now. However, here is something there can be no question about."

He went to a cupboard, and brought out a jar full of a viscid yellow substance.

"This," he said, "is an embrocation, and it is the finest thing I know for sprains and bruises. It is made of the wax from old combs, dissolved in turpentine, and if we got nothing else from the hives bee-keeping would yet be justified as a humanitarian calling. Its virtues may be in the wax, or they may be due to the turpentine, but probably they lie in another direction altogether. Bees collect a peculiar resinous matter from pine trees and elsewhere, with which they varnish the whole surface of their combs, and this may be the real curative element in the stuff."

Now, with a glance at the clock, the bee-master went to the open door and hailed his foreman in from his work about the garden. Between them they lifted away the heavy caldron from the fire, and tilted its steaming contents into a barrel close at hand. The whole building filled at once with a sweet penetrating odour, which might well have been the concentrated fragrance of every summer flower on the countryside.

"But of all the good things given us by the wise physician of the hive," quoth the old bee-keeper, enthusiastically, "there is nothing so good as well-brewed metheglin. This is just as I have made it for forty years, and as my father made it long before that. Between us we have been brewing mead for more than a century. It is almost a lost art now; but here in Sussex there are still a few antiquated folk who make it, and some, even, who remember the old methers—the ancient cups it used to be quaffed from. As an everyday drink for working-men, wholesome, nourishing, cheering, there is nothing like it in or out of the Empire.

## CHAPTER XI.

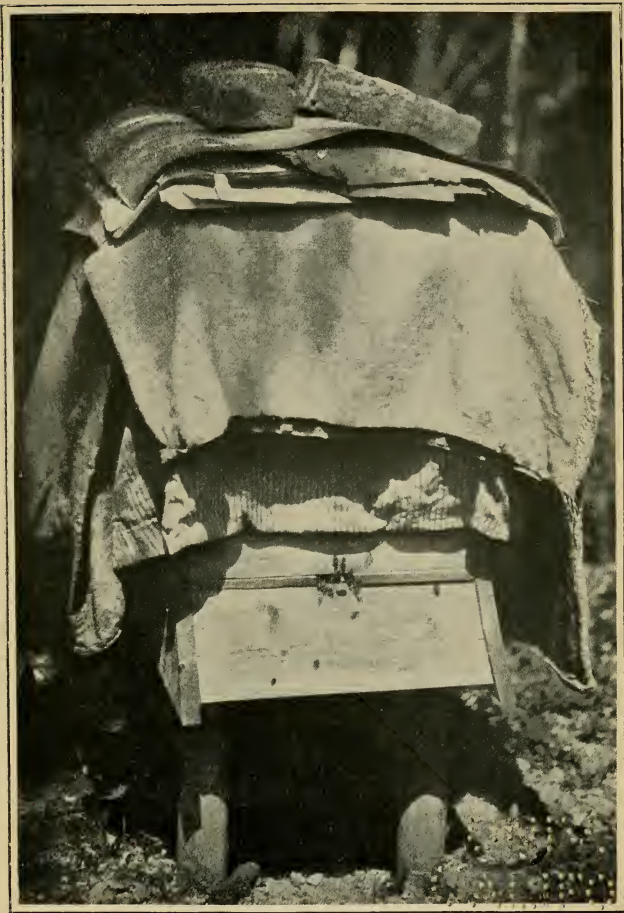
### WINTER WORK ON THE BEE-FARM.

The light snow covered the path through the bee-farm, and whitened the roof of every hive. In the red winter twilight it looked more like a human city than ever, with its long double rows of miniature houses stretching away into the dusk on either hand, and its broad central thoroughfare, where the larger hives crowded shoulder to shoulder, casting their black shadows over the glimmering snow.

The bee-master led the way towards the extracting-house at the end of the garden, as full of his work, seemingly, as ever he had been in the press of summer days. There was noise enough going on in the long lighted building ahead of us, but I missed the droning song of the great extractor itself.

"No ; we have done with honey-work for this year," said the old bee-man. "It is all bottled and cased long ago, and most of it gone to London. But there's work enough still, as you'll see. The bees get their long rest in the winter ; but, on a big honey-farm, the humans must work all the year round."

As we drew into the zone of light from the windows, many sounds that from afar had seemed incongruous enough on the silent, frost-bound evening began to explain themselves. The whole building was full of busy life. A furnace roared under a great caldron of smoking syrup, which the foreman was vigorously stirring. In the far corner an oil-engine clanked and spluttered. A circular saw was screaming through a baulk of timber, slicing it up into thin planks as a man would turn over the leaves of a book. Planing machines and hammers and hand-saws innumerable added their voices to the general chorus ; and out of the shining steel jaws of an implement that looked half printing-press and half clothes-wringer there



#### ONE WAY OF BEE-KEEPING.

The hive in the photograph is one of about a hundred and thirty similar ones kept in the heart of a wood in Sussex. The bee-keeper is a very successful honey-producer, working on the most modern systems. But, outwardly, his hives present a very bizarre appearance, every kind of domestic flotsam and jetsam being used as coverings. The hive shown has bed-ticking, old sacks, three or four newspapers, linoleum, sheet-iron, &c., with several brickbats to keep all in place on windy days. It is but fair, however, to record that the bees seem to thrive well under these peculiar conditions.







## Winter Work on the Bee-Farm.

flowed sheet after sheet of some glistening golden material, the use of which I could only dimly guess at.

But I had time only for one swift glance at this mysterious monster. The bee-master gripped me by the arm and drew me towards the furnace.

"This is bee-candy," he explained, "winter food for the hives. We make a lot of it and send it all over the country. But it's ticklish work. When the syrup comes to the galloping-point it must boil for one minute, no more and no less. If we boil it too little it won't set, and if too much it goes hard, and the bees can't take it."

He took up his station now, watch in hand, close to the man who was stirring, while two or three others looked anxiously on.

"Time!" shouted the bee-master.

The great caldron swung off the stove on its suspending chain. Near the fire stood a water-tank, and into this the big vessel of boiling syrup was suddenly doused right up to the brim, the stirrer labouring all the time at the seething grey mass more furiously than ever.

"The quicker we can cool it the better it is," explained the old bee-keeper, through the steam. He was peering into the caldron as he spoke, watching the syrup change from dark clear grey to a dirty white, like half-thawed snow. Now he gave a sudden signal. A strong rod was instantly passed through the handles of the caldron. The vessel was whisked out of its icy bath and borne rapidly away. Following hard upon its heels, we saw the bearers halt near some long, low trestle-tables, where hundreds of little wooden boxes were ranged side by side. Into these the thick, sludgy syrup was poured as rapidly as possible, until all were filled.

"Each box," said the bee-master, as we watched the candy gradually setting snow-white in its wooden frames, "each box holds about a pound. The box is put into the hive upside-down on the top of the comb-frames, just over the cluster of bees; and the bottom is glazed because then you can see when the candy is exhausted, and the time has come to put on another case. What is it made of? Well, every maker has his own private formula, and mine is a secret like the rest. But it is sugar, mostly—cane-sugar. Beet-sugar will not do; it is injurious to the bees.

“ But candy-making,” he went on, as we moved slowly through the populous building, “ is by no means the only winter work on a bee-farm. There are the hives to make for next season ; all those we shall need for ourselves, and hundreds more we sell in the spring, either empty or stocked with bees. Then here is the foundation mill.”

He turned to the contrivance I had noticed on my entry. The thin amber sheets of material, like crinkled glass, were still flowing out between the rollers. He took a sheet of it as it fell, and held it up to the light. A fine hexagonal pattern covered it completely from edge to edge.

“ This,” he said, “ we call super-foundation. It is pure refined wax, rolled into sheets as thin as paper, and milled on both sides with the shapes of the cells. All combs now are built by the bees on this artificial foundation ; and there is enough wax here, thin as it is, to make the entire honeycomb. The bees add nothing to it, but simply knead it and draw it out into a comb two inches wide ; and so all the time needed for wax-making by the bees is saved just when time is most precious—during the short season of the honey-flow.”

He took down a sheet from another pile close at hand.

“ All that thin foundation,” he explained, “ is for section-honey, and will be eaten. But this you could not eat. This is brood-foundation, made extra strong to bear the great heat of the lower hive. It is put into the brood-nest, and the cells reared on it are the cradles for the young bees. See how dense and brown it is, and how thick ; it is six or seven times as heavy as the other. But it is all pure wax, though not so refined, and is made in the same way, serving the same useful, time-saving purpose.”

We moved on towards the store-rooms, out of the clatter of the machinery.

“ It was a great day,” he said, reflectively, “ a great day for bee-keeping when foundation was invented. The bee-man who lets his hives work on the old obsolete natural system nowadays makes a hopeless handicap of things. Yet the saving of time and bee-labour is not the only, and is hardly the most important, outcome of the use of foundation. It has done a great deal more than that, for it has solved the very weighty problem of how to keep the number of drones in a hive within reasonable limits.”

## Winter Work on the Bee-Farm.

He opened the door of a small side-room. From ceiling to floor the walls were covered with deep racks loaded with frames of empty comb, all ready for next season. Taking down a couple of the frames, he brought them out into the light.

"These will explain to you what I mean," said he. "This first one is a natural-built comb, made without the milled foundation. The centre and upper part, you see, is covered on both sides with the small cells of the worker-brood. But all the rest of the frame is filled with larger cells, and in these only drones are bred. Bees, if left to themselves, will always rear a great many more drones than are needed; and as the drones gather no stores but only consume them in large quantities, a superabundance of the male-bees in a hive must mean a diminished honey-yield. But the use of foundation has changed all that. Now look at this other frame. By filling all brood-frames with worker-foundation, as has been done here, we compel the bees to make only small cells, in which the rearing of drones is almost impossible; and so we keep the whole brood-space in the hive available for the generation of the working bee alone."

"But," I asked him, "are not drones absolutely necessary in a hive? The population cannot increase without the male bees."

"Good drones are just as important in a bee-garden as high-mettled, prolific queens," he said; "and drone-breeding on a small scale must form part of the work on every modern bee-farm of any size. But my own practice is to confine the drones to two or three hives only. These are stationed in different parts of the farm. They are always selected stocks of the finest and most vigorous strain, and in them I encourage drone-breeding in every possible way. But the male bees in all honey-producing hives are limited to a few hundreds at most."

Coming out into the darkness from the brilliantly-lighted building, we had gone some way on our homeward road through the crowded bee-farm before we marked the change that had come over the sky. Heavy vaporous clouds were slowly driving up from the west and blotting the stars out one by one. All their frosty sparkle was

gone, and the night air had no longer the keen tooth of winter in it. The bee-master held up his hand.

"Listen!" he said. "Don't you hear anything?"

I strained my ears to their utmost pitch. A dog barked forlornly in the distant village. Some night-bird went past overhead with a faint jangling cry. But the slumbering bee-city around us was as silent and still as death.

"When you have lived among bees for forty years," said the bee-master, plodding on again, "you may get ears as long as mine. Just reckon it out. The wind has changed; that curlew knows the warm weather is coming; but the bees, huddled together in the midst of a double-walled hive, found it out long ago. Now, there are between three and four hundred hives here. At a very modest computation, there must be as many bees crowded together on these few acres of land as there are people in the whole of London and Brighton combined. And they are all awake, and talking, and telling each other that the cold spell is past. That is what I can hear now, and shall hear—down in the house yonder—all night long."



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